

## Constructing Ponds and Water Features What Does It Take?

The information in this publication is intended for informational purposes and while all effort has been made to present accurate information, the reader should contact the appropriate entity for details and up-to-date information. In no circumstance should the reader use the information contained here as a substitute for the appropriate legal advice.



Constructing a pond can significantly affect your water resources and those of your neighbors as well as “downstream” resources. While attractive, ponds can attract water fowl, which can add fecal contaminants and bacteria to the water, impacting both surface and drinking water quality and human health. Non-native fish and vegetation can also “escape” the confinement of the pond and negatively affect native species. Poorly sited and improperly constructed ponds can alter hydrology, destroy habitat, and degrade water quality. Due to potential impacts, you should carefully assess what is necessary both technically and legally before constructing a pond. This factsheet will provide you an idea of things you should consider before constructing a pond and is not intended to be a technical guide to construction.

### Water Features

In practice, water features usually consist of preformed or lined “ponds” filled with house (well or utility) water, recirculate the water with small pumps, and are located within the landscaped area of your yard. While these features can be complicated, they usually tend to hold 1000-1500 gallons of water or less. Water features also tend to be “self-contained” in that they do not drain to or connect with surface water or ground water. For these reasons, water features have little impact on water resources and are relatively easy to build. These “ponds” are most often considered landscaping by the county and fall under general requirements for swimming pools:

If additional wiring is necessary, a state electrical permit (pumps, lights, etc.) should be obtained from the Department of Labor and Industries (360-896-2300, located at 312 SE Stonemill Drive Suite 120, Vancouver, 98684-3508). Permit fees for can be found at <http://www.lni.wa.gov/tradeslicensing/electrical/files/feetrainnotes063004.pdf>.

The water feature should be located one foot away from the home foundation for every two feet of pond depth.





## WSU Extension ~~ Clark County Clean Water Program ~~ Clark Conservation District

Secure a grading permit if the total excavated and fill material surpass 50 cubic yards. If the soil removed from the hole is placed on the same property that it was excavated from, then it is counted as fill and part of the 50 cubic yards that triggers the grading permit. As an example, a 15' x 15' x 3' deep hole produces 25 cubic yards of excavated soil *and* 25 cubic yards of fill which equals 50 cubic yards. (15' times 15' times 3' equals 675 cubic feet, which equals 25 cubic yards when you divided 675 by 27 cubic feet per cubic yard.)

### Constructed Ponds

Constructed ponds tend to be much larger with a higher potential impact on water resources and are therefore more regulated than water features. Ponds tend to be fed by water from stormwater runoff (from roofs, impervious surfaces, etc.), groundwater (springs, seepage), or streams. Ponds usually have some type of outlet structure. A pond may be formed totally by excavation or with a combination of excavation and embankment (or berm) construction. Excavated ponds pose the least safety hazard since a burst embankment can send large quantities of water downstream, not only carrying contaminants, but endangering both life and property.

### Legal Considerations (Permitting, Insurance, Water Rights)

A landowner's best strategy is to begin with the Clark County Community Development Customer Service Permit Center at 1300 Franklin Street, Vancouver, 360-397-2375 extension 4489 (or the Battle Ground office at 701 East Main, at 360-687-7126 extension 211). Based on your specific project and location, they will advise you of the permits required for your project. Table 1 provides a quick overview of some possible permits necessary for constructing a pond.

**Permits.** Constructed ponds will almost always require permits. The type of permits required depends on several factors: location, size, method of construction (excavated, bermed), and purpose. Be aware that the permitting process can be time consuming and involves completing forms that provide necessary information to Clark County Community Development. The tables below provide an outline of some common permits that may be required. Permits also require fees for application review and construction inspection which will vary according to the permit required and the agency. Application fees are generally not refunded if the application is denied. Additional charges apply to projects not completed within six months of the permit issue date unless an extension is obtained.

You will first need to submit a completed *Developer's GIS Packet*, available from Clark County Assessment and GIS Department for \$30.00 (plus tax), along with your grading permit application. For a general overview, read the county's handout, *Grading of Land*, at <http://www.clark.wa.gov/commdev/documents/engservices/handouts/101-grading.pdf>.

Grading fees double if you are caught grading without a permit. When grading exceeds 500 cubic yards, a State Environmental Policy Act (SEPA) review is required. A simple application without a SEPA review takes an average of two weeks to complete. A SEPA review needs a minimum of 78 days for processing.

Very large constructed ponds exceeding 3.25 million gallons (or 10 acre-feet where an acre-foot is the volume of water covering one acre of land at one foot in depth) require a reservoir dam safety permit from the Department of Ecology. For more information about reservoir dam safety permits, contact the Department of Ecology, Water Resources Program, 360-407-6167.

The Washington State Department of Fish and Wildlife (WDFW) requires a permit for stocking a constructed pond with fish. WDFW wants to ensure that stocked fish do not escape into streams and other



## WSU Extension ~ Clark County Clean Water Program ~ Clark Conservation District

**Table 1: Permit Information \*\***

Permit	Threshold	Plan Review Fee	Inspect Fee	Other Fees	Conditions / Definitions	Agency
Pre-Application Conference				Varies	Costs for this pre-application conference will vary depending on the project complexity.	Clark County Community Development
GIS Developers Packet				\$30		
Grading	50 - 100 yds	\$186	\$232		Required to import or excavate 50 or more yards of earth material to or from a specific location.	Clark County Community Development
	101 - 10,000 yd	\$511	\$790			
	Over 10,000 yds	\$1,394	\$1,860			
SEPA	Over 50 yds	\$464			<i>When grading in wetland, shoreline, or floodplain.</i> (Grading in priority habitats or	Clark County Community Development
	Over 500 yds	\$1,515	+ \$17/ac			
Joint Aquatic Resource Application (JARPA)	Applicable fees for each permit required.				A JARPA streamlines the process when several agencies need to issue permits for a single project.	
Archaeological (first five acres)	Over 500 yds	\$464				Clark County Community Development
Engineered Grading Plan	Over 5000 yds				An engineered grading plan is prepared, signed, and stamped by an engineer licensed in the State of Washington.	Clark County Community Development
HPA (Hydraulic Project Approval)	In-stream or water diversion	No Fee			Required for work that will use, divert, obstruct, or change the natural flow or bed of any waters of the state.	WA Department of Fish and Wildlife
Wetland Permit		\$464 (pre-determination)		\$827 (< 1ac) \$1655 (>1 ac)	The wetland pre-determination is OPTIONAL for on-site review of site conditions, delineations, and or proposed plans PRIOR TO submittal of a development permit application. Required for grading; requires approval of an enhancement/mitigation plan if needed.	Clark County Community Development
Habitat Permit	\$89 (pre-determination)	\$567			Permit for clearing or land use activities within a Habitat Conservation Area.	Clark County Community Development
Dam Safety	Impoundment of more than 3.25 million gallons			Variable	Required for constructing, modifying, or repairing any dam storing 10 or more acre-feet (3.25 million gallons) of water.	WA Department of Ecology
Water Right	Stream diversion / well use over 5000 gallons/day			\$10 min. (Variable)	Authorizes use a predefined quantity of public water for a designated, beneficial purpose.	WA Department of Ecology
Stocking Fish	Stocking any fish			\$24	Required to place certain fish species in constructed ponds.	WA Department of Fish and Wildlife

\*\* All fees and other information current as of August 2004 and subject to change.

+ Yds = cubic yards





## WSU Extension ~~ Clark County Clean Water Program ~~ Clark Conservation District

water bodies since non-native and hatchery fish can cause serious ecological imbalances through habitat and food competition, disease, and predation.. Screens and other exclusion measures may be required to prevent fish from escaping. Suitable fish include rainbow trout, largemouth bass, bluegill, sunfish, and channel catfish. WDFW maintains a list of certified disease-free fish growers. The permit application (available at <http://www.wdfw.wa.gov/fish/fishtran.pdf>) should be submitted to the WDFW office, 2108 Grand Boulevard in Vancouver. Stocking permits may take 30 days to process. If other permits are required it could take longer. For further information, see <http://www.wdfw.wa.gov/fish/trnsport.htm> or call 306-696-6211.

**Insurance.** A constructed pond is considered an “attractive nuisance” and a landowner is liable for any injuries that may occur to trespassers. Check with your homeowners’ insurance company for more information.

**Water Rights.** Stream water belongs to the public and altering flows requires a “water right.” A water right grants individuals or groups the use of a certain amount of water, but not ownership. Legally, a water right “is a legal authorization to use a predefined quantity of public water for a designated, beneficial purpose.” Water rights law involves a very complex set of rules throughout the western U.S. Irrigation comprises one use that requires such a water right. For more information, contact the Washington State Department of Ecology (DOE), Southwest Region 360- 407-6300 or view their web site on water rights at <http://www.ecy.wa.gov/programs/wr/rights/water-right-home.html>.

### Technical & Use Considerations

#### *Design*

For basic information on designing smaller ponds and attracting wildlife, see the WDFW page at <http://www.wdfw.wa.gov/wlm/urban/ponds-backyard.htm>. An 85 page, 1997 booklet by the NRCS also contains information on pond design: <http://209.234.81.2/images/pdf/PondsPlanDesignConstruct.pdf>.

#### *Water Sources*

**Rainwater runoff.** A well designed pond positioned at the bottom of a sufficiently large “watershed” or drainage area could be filled from the surface runoff that drains into the pond. Directing roof runoff from buildings can also help fill a pond. Directing runoff from driveways or animal areas into a pond risks concentrating pollutants (oil, grease, manure, etc.) that could harm plants and animals. This latter type of runoff could best be handled by grassy swales to trap sediments and pollutants.

**Existing subsurface drains.** Some properties formerly or currently used for agriculture might have existing subsurface drains that could be routed to a pond. Storing this water in a pond would be a more environmentally sound method of managing storm water than draining the water directly into streams.

#### *Pond Use*

A pond can serve several uses, often at the same time. The more uses you derive from a pond, the better return you will receive on your invested time and financial resources.

**Watering Livestock.** A pond can be used as an alternative to watering livestock directly from streams and natural ponds or wetlands, thereby improving water quality. While animals should not be given uncontrolled access to a pond, there are ways to control their access and still provide animal watering. The Clark Conservation District (360-883-1987 x110) can help you with this.



## WSU Extension ~~ Clark County Clean Water Program ~~ Clark Conservation District

DOE recognizes water quality improvement when landowners remove animals from streams. For this reason, if you have historically used a stream to water livestock, you can divert small amounts of water to create off-stream storage, but only as much water as your animals would normally drink. Any diversion pipe inlets and outlets must be covered with 1/8 inch wire mesh screen to prevent fish passage and excess water should be outlet as close as possible to the intake. This exception only applies to small numbers of animals and not to concentrated uses, such as feed lots. While it is not required to notify DOE, it is in your best interest to send a letter of intent. Keeping a record of the historical use, number of animals, and the water source can demonstrate you did not expand your water use.

**Fire Protection.** A pond used for fire protection should provide 500 gallons of water per minute for at least 30 minutes (15,000 gallons) and will need year-round fire truck access. Your homeowner's insurance may provide a discount for this type of pond.

**Recreation.** Include pond safety into your plans to minimize the risk to people, but especially to children. Constructed ponds should be fenced and have shallow side slopes less than 1:4 (one foot drop for every four feet horizontal). Placing easily accessible floatation devices nearby also improves safety and reduces potentially serious accidents.

**Wildlife.** Constructed and landscaped properly, ponds can also attract a variety of wildlife, from deer to birds to frogs. Be forewarned that ducks and geese can quickly foul a pond with their droppings, creating a green and malodorous nuisance which can pollute groundwater and nearby natural surface waterbodies. The secret to attracting wildlife rests with the vegetation you plant. For ideas, contact the Clark Conservation District.

### *Pond Location*

Locating a pond will depend on topography (slope), soils, and existing landscape and ecological features. It will be difficult to permit constructed ponds in critical aquifer recharge areas, priority habitat areas, wetland areas, floodplains, and shoreline areas.

The Clark County soil survey lists soil types and their suitability for ponds (and many other activities) and can be seen on-line at [http://www.or.nrcs.usda.gov/pnw\\_soil/washington/wa011.html](http://www.or.nrcs.usda.gov/pnw_soil/washington/wa011.html).

It is dangerous and illegal dam a stream to construct a pond. Earthen dams are subject to failure from high flow events and improper construction. You are legally liable for damage caused by illegal construction.

You can access the Clark County Geographic Information System at: <http://gis.clark.wa.gov/applications/gishome/index.cfm> to look at identified critical areas and other information about your property by entering your address or parcel number.

If you plan a larger constructed pond, you will be well served to consult with an engineering firm familiar with pond design and construction.





## WSU Extension ~ Clark County Clean Water Program ~ Clark Conservation District

### Pond Maintenance

Proper maintenance and operation, such as regular inspection and repair of banks and spillways, will prolong the life of your constructed pond. Keeping contaminated water (excess fertilizer, animal manure, etc.) out of the pond will maintain cleaner pond water and keep these pollutants from entering natural waters via the pond outlet. In order to minimize mosquito breeding, you may want to consider stocking your pond with fish that effectively control mosquitoes.

**Table 2: Agencies Contact**

Agency	Permits	Contact Information	Web Sites
Clark Conservation District	Technical Assistance	11104 NE 149 <sup>th</sup> Street C 400, Brush Prairie WA 98606 360-883-1987 x110	<a href="http://clark.scc.wa.gov/">http://clark.scc.wa.gov/</a>
Clark County Community Development	Grading, plumbing, shoreline, habitat, archeological, SEPA, wetland	1300 Franklin Street, Vancouver, WA 98660 360-397-2375 x5019	<a href="http://www.clark.wa.gov/commdev/index.html">http://www.clark.wa.gov/commdev/index.html</a>
		701 East Main, Battle Ground WA 98604 360-687-7126 x211	
WA Department of Ecology	Water rights,	300 Desmond Drive, Post Office Box 47600, Olympia, WA 98504-7600 360-407-7037	<a href="http://www.ecy.wa.gov/programs/wr/rights/water-right-home.html">http://www.ecy.wa.gov/programs/wr/rights/water-right-home.html</a>
WA Department of Fish and Wildlife	HPA	Region 5, 5404 NE Hazel Dell Ave., Vancouver, WA 98663-1299 306-696-6211	<a href="http://wdfw.wa.gov/reg/region5.htm">http://wdfw.wa.gov/reg/region5.htm</a>
WA Department of Labor and Industries	Electrical	312 SE Stonemill Drive Suite 120, Vancouver, 98684-3508 360-896-2300	<a href="http://www.lni.wa.gov/TradesLicensing/Electrical/FeePermInsp/default.asp">http://www.lni.wa.gov/TradesLicensing/Electrical/FeePermInsp/default.asp</a>
WA Department of Natural Resources	Aquatic resources	Headquarters 360-902-1100 Southwest Region 360-577-2025	<a href="http://www.dnr.wa.gov/">http://www.dnr.wa.gov/</a>
USDA Natural Resource Conservation Service	Technical Assistance	11104 NE 149 <sup>th</sup> Street C 400, Brush Prairie WA 98606 360-883-1987 x3	<a href="http://www.wa.nrcs.usda.gov/">http://www.wa.nrcs.usda.gov/</a>



Written by Douglas M. Stienbarger with research by Penny Ramey. September 2004

A special thanks goes to *Shari Jensen*, Clark County Community Development, for her review. Thanks to the following individuals who helped with the information contained in this factsheet:

*Melissa Curtis, Kami Simpson, & Linda Moorhead*, Clark County Community Development

*Désirée deMonyé*, Clark County Archaeological Review Coordinator

*Doug Fenwick*, USDA RCS / *Stacey Kelsey*, Washington State DFW

**Living on the Land** is sponsored in partnership by WSU Extension Clark County, the Clark County Clean Water Program, and the Clark Conservation District

Extension programs are available to all without discrimination.